

Desired Results

**Standard**

**MAFS.7.NS.1.3:** Solve real-world and mathematical problems involving the four operations with rational numbers.

*Cognitive Complexity: Level 2, Basic Application of Skills and Concepts*

**Access Point**

**MAFS.7.NS.1.AP3a:** Solve real-world and mathematical problems involving the four operations with rational numbers from -100 to 100.

**Supporting Standard(s)**

*When students work toward meeting this standard (which is closely connected to 7.NS.1.1 and 7.NS.1.2), they consolidate their skill and understanding of addition, subtraction, multiplication and division of rational numbers.*

**MAFS.7.NS.1.1:** Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

**MAFS.7.NS.1.2:** Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.

**Unpacked Standard Concepts**

**Students will know . . .**

(Underlined Nouns/Noun Phrases)

- Real-world problems
- Mathematical problems
- Four operations with rational numbers

**Unpacked Standard Skills**

**Students will be able to . . .**

(Circled Verbs/Verb Phrases)

- Solve

**Prerequisite Knowledge and Skills Within Standard (Implied)**

For more information: <http://www.p21.org>

- Critical thinking and problem-solving skills
- Flexibility and adaptability
- Attention and self-regulation
- Creativity and innovation skills

**Instructional Implications of the Standard (Instruction Needed to Ensure Student Mastery of the Standard)**

- Students must be provided with the opportunity to utilize a variety of tools to solve problems involving the four operations with rational numbers (e.g., visual models to solve the problem).
- Review/reteach students understanding of addition and subtraction, including utilization of a horizontal/vertical number line.
- Review/reteach understanding of multiplication/division (including fractions).
- Explicitly teach and model critical thinking and problem solving skills
- Support students' critical thinking and problem-solving skills
- Support students' focus, attention and self-regulation
- Support creativity and innovation skills

**Learning Goal**

I can solve real-world and mathematical problems involving the four operations with rational numbers.

**IEP Learning Goal**

I can solve real-world and mathematical problems using addition, subtraction, multiplication, or division with rational numbers, with 85% accuracy on quizzes and test where operations from -100 to 100 are assessed by the end of the school year.

**Essential Questions (In student-friendly language)**

In real life, when would I need to add, subtract, multiple, and/or divide rational numbers?

What is an efficient strategy for solving real-world problems with rational numbers?

What tools could I use to solve real-world problems involving the four operations with rational numbers?

Assessment Evidence											
<b>Performance Tasks:</b> <ul style="list-style-type: none"> <li>Add, subtract, multiply, and divide positive and negative fractions</li> <li>Evaluate a numerical expression</li> <li>Rewrite complex fractions as simple fractions in lowest terms</li> <li>Solve a real-world problem that involves finding the average of positive and negative decimal numbers</li> <li>Solve a real-world problem involving divisions of fractions</li> </ul> <p>Note: Students should not be limited to fractions but receive practice with rational numbers in various forms within the same problem to address the standard</p>	<b>Other evidence:</b> <table> <tr> <th colspan="2">Scale</th></tr> <tr> <td>4</td><td>In addition to score 3.0, I can explain my thinking.</td></tr> <tr> <td>3</td><td>           In addition to score 2.0, I can:           <ul style="list-style-type: none"> <li>Add, subtract, multiply and divide rational numbers</li> <li>Create and solve real world problems with rational numbers</li> <li>Create and solve mathematical problems with rational numbers</li> </ul> </td></tr> <tr> <td>2</td><td>           I can:           <ul style="list-style-type: none"> <li>Understand the concepts, symbols, and vocabulary for positive and negative number</li> </ul> </td></tr> <tr> <td>1</td><td>With help, I can have partial success with 2.0 content</td></tr> </table>	Scale		4	In addition to score 3.0, I can explain my thinking.	3	In addition to score 2.0, I can: <ul style="list-style-type: none"> <li>Add, subtract, multiply and divide rational numbers</li> <li>Create and solve real world problems with rational numbers</li> <li>Create and solve mathematical problems with rational numbers</li> </ul>	2	I can: <ul style="list-style-type: none"> <li>Understand the concepts, symbols, and vocabulary for positive and negative number</li> </ul>	1	With help, I can have partial success with 2.0 content
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<b>Test Item Specs</b> <a href="http://fsassessments.org/wp-content/uploads/2015/08/Grade7-FSA-ItemSpecs-508_Final_052217.pdf">http://fsassessments.org/wp-content/uploads/2015/08/Grade7-FSA-ItemSpecs-508_Final_052217.pdf</a>											